

Claims

We Claim:

1. A catalyst system for the polymerization or copolymerization of olefins comprising:
 - (a) a Ziegler-Natta catalyst;
 - (b) an organoaluminum compound co-catalyst; and
 - (c) at least one external electron donor comprising n-butylmethyldimethoxysilane (BMDS).
2. The catalyst of claim 1 where the Ziegler-Natta catalyst comprises a transition metal compound of the formula MR^+_x where M is selected from the group consisting of titanium, chromium, and vanadium, R is selected from the group consisting of halogen or a hydrocarboxyl, and x is the valence of M.
3. The catalyst of claim 1 where in (b) the organoaluminum compound is triethyl aluminum (TEAL).
4. The catalyst of claim 1 where the Al/Si molar ratio (organoaluminum compound to silane donor) ranges from about 0.5 to about 500.
5. A catalyst system for the polymerization or copolymerization of olefins comprising:
 - (a) a Ziegler-Natta catalyst, where the Ziegler-Natta catalyst comprises a transition metal compound of the formula MR^+_x where M is selected from the group consisting of titanium, chromium, and vanadium, R is selected from the group consisting of halogen or a hydrocarboxyl, and x is the valence of M;
 - (b) an organoaluminum compound co-catalyst; and

- (c) at least one external electron donor comprising n-butylmethyldimethoxysilane (BMDS)

where the Al/Si molar ratio (organoaluminum compound to silane donor) ranges from about 0.5 to about 500.

6. The catalyst of claim 5 where in (b) the organoaluminum compound is triethyl aluminum (TEAL).

7. A polypropylene comprising a propylene polymer or copolymer having a melt flow of at least about 0.5 g/10 min. and xylene solubles of not more than about 6%, and a meso pentad level of between about 91 and about 98%.

8. The polypropylene of claim 7 further having a polydispersity ranging from about 4 to about 10.

9. The polypropylene of claim 7 where the polypropylene is formed by a process comprising:

- (a) providing a Ziegler-Natta catalyst;
- (b) contacting the catalyst with an organoaluminum compound;
- (c) contacting the catalyst with at least one electron donor comprising n-butylmethyldimethoxysilane (BMDS) simultaneously with or subsequent to (b);
- (d) introducing the catalyst into a polymerization reaction zone containing the organoaluminum compound, the electron donor and propylene monomer; and
- (e) removing polypropylene homopolymer or copolymer from the polymerization reaction zone.

10. The polypropylene of claim 7 where the polypropylene has a lower processability temperature as compared to a polypropylene formed in the absence of BMDS that is otherwise identical.
11. An article formed from polypropylene comprising a propylene polymer or copolymer having a melt flow of at least about 0.5 g/10 min. and xylene solubles of not more than about 6%, and a meso pentad level of between about 91 and about 98%.
12. The article of claim 11 where the polypropylene is formed by a process comprising:
- (a) providing a Ziegler-Natta catalyst;
 - (b) contacting the catalyst with an organoaluminum compound;
 - (c) contacting the catalyst with at least one electron donor comprising n-butylmethyldimethoxysilane (BMDS) simultaneously with or subsequent to (b);
 - (d) introducing the catalyst into a polymerization reaction zone containing the organoaluminum compound, the electron donor and propylene monomer; and
 - (e) removing polypropylene homopolymer or copolymer from the polymerization reaction zone.